

Listing of claims:

1. (Previously Presented) An electrochemical battery comprising:

a stack of bipolar wafer cells electrically connected in series, each cell having an area to expand in response to pressure generated within the respective cell, the expandable area of each cell being aligned with a corresponding expandable area of at least one adjacent cell;

a pressure sensor responsive to a force transmitted through the stack via the expandable areas of the cells, the force to be created by pressure generated in at least one cell in the stack of bipolar cells.

2. (Previously Presented) The electrochemical battery of claim 1, wherein the pressure sensor is coupled to a cell at the end of the stack of bipolar wafer cells.

3. (Previously Presented) The electrochemical battery of claim 1, the force is to be created by pressure generated in more than one cell in the stack of bipolar cells.

4. (Previously Presented) The electrochemical battery of claim 1, wherein each cell includes a cell envelope, the expandable area comprising an extension of the cell envelope.

5. (Previously Presented) The electrochemical battery of claim 1, wherein the expandable area of each cell comprises a corner of the cell.

6. (Previously Presented) The electrochemical battery of claim 1, wherein each cell includes multiple areas to expand in response to pressure generated within the respective cell, each expandable area of each cell being aligned with a corresponding expandable area of at least one adjacent cell.

7. (Previously Presented) The electrochemical battery of claim 1, wherein the pressure sensor comprises:

means for deflecting in response to the force to be transmitted through the stack via the expandable areas of the; and

a switch operatively coupled to the means for deflecting, deflection of the means for deflecting to actuate the switch.

8. (Previously Presented) The electrochemical battery of claim 1, wherein the pressure sensor comprises a metal strip including a bonded strain gauge, the metal strip to receive the force to be transmitted through the stack via the expandable areas of the cells.

9. (Previously Amended) The electrochemical battery of claim 8, further comprising:

a retaining strip; and

a tie rod coupled to the retaining strip and the metal strip to retain the stack of bipolar wafer cells, the expandable areas of the cells being retained between the metal strip including the bonded strain gauge and the retaining strip.

10. (Previously Presented) The electrochemical battery of claim 8, further comprises:

a circuit to power the strain gauge and to generate an output signal as a function of deflection of the strain gauge, the signal to control a flow of electrical current through the stack.

11. (Previously Presented) The electrochemical battery of claim 10, wherein the circuit comprises:

a constant voltage power supply, to be powered by power from the stack of bipolar wafer cells, to power the strain gauge;

an amplifier to increase an amplitude of the signal to be output from the strain gauge;

a voltage comparator to compare the amplified signal of the strain gauge output with a threshold value; and

a switch coupled to an output of the comparator, the switch to interrupt current flow through the stack of bipolar wafer cells if the amplified signal of the strain gauge output reaches the threshold value.

12. (Original) The electrochemical battery of claim 11, wherein the switch is a relay.

13. (Original) The electrochemical battery of claim 11, wherein the switch is a solid state switch.

14. (Original) The electrochemical battery of claim 11, wherein the switch is field effect transistor (FET).

15. (Previously Presented) The electrochemical battery of claim 1, further comprising:
means for terminating battery charge and discharge based on the force received by said pressure sensor.

16. (Previously Presented) The electrochemical battery of claim 1, wherein the pressure sensor is to control electrical current flow through the stack to interrupt battery charge or discharge until the force transmitted through the stack via the expandable areas of the cells decreases to a threshold level.

17. (Previously Presented) The electrochemical battery of claim 1, wherein the pressure sensor is to control electrical current flow through the stack to reduce a rate of charge and discharge to a threshold level.

18. (Canceled).

19. (Withdrawn) A method for controlling a stack of bi-polar wafer cells connected in series, the method comprising:

sensing a force created by pressure generated in a cell in the stack of bipolar cells;
transmitting the sensed force to a trigger mechanism;
terminating a charging of the cell in response to an output of the trigger mechanism.

20. (Withdrawn) The method of claim 19, further comprising:

terminating a discharging of the cell in response to the output of the trigger mechanism.

21. (Withdrawn) The method of claim 19, wherein the pressure is sensed in an area of the cell that is expandable in response to pressure.

22. (Withdrawn) The method of claim 21, further comprising:

aligning the area expandable in response to pressure of each cell with a corresponding area of at least one adjacent cell.

23. (Withdrawn) The method of claim 19, further comprising:

sensing the force created by pressure generated in the cell on an extension of the cell that is fabricated into each cell in the stack of cells.

24-32. (Canceled).

33. (Previously Presented) The electrochemical battery of claim 7, wherein the means for deflecting exhibits a spring constant of deflection.

34. (Previously Presented) The electrochemical battery of claim 33, wherein the spring constant of deflection is adjustable.

35. (Previously Presented) The electrochemical battery of claim 33, wherein the means for deflecting comprises a metal foil strip or a spring.

36. (Previously Presented) The electrochemical battery of claim 7, wherein actuation of the switch is to control a flow of electrical current through the stack.

37. (Previously Presented) The electrochemical battery of claim 1, wherein the pressure sensor comprises:

a switch positioned to receive the force to be transmitted through the stack via the expandable areas of the cells, the force to actuate the switch.

38. (Previously Presented) The electrochemical battery of claim 37, wherein actuation of the switch is to control a flow of electrical current through the stack.